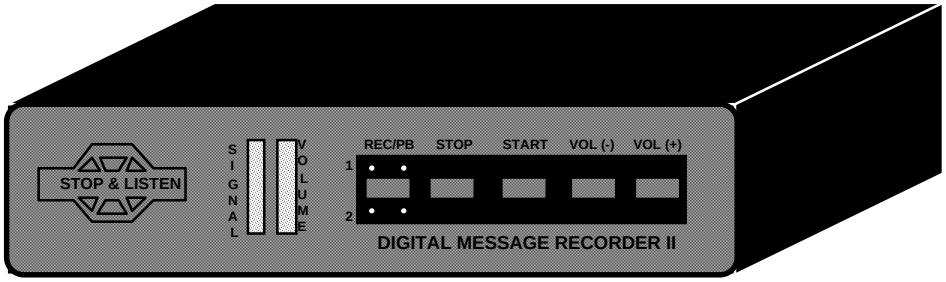
OPERATING INSTRUCTIONS
DIGITAL MESSAGE RECORDER II
STOP AND LISTEN INC.



CONTENTS

CONFIGURATION

Your new DMR II can be configured in various different ways, depending on how a series of internal dip switches has been set during manufacture. These switches are used to select single vs. dual message mode, digital sampling rate vs. maximum message duration, and whether or not the unit has been configured to work with Multi-Message Recorders, etc. This unit has been pre-configured as indicated below:

SERIAL NUMBER	_____
MESSAGE MODE	S = single, D = dual
MAX. (COMBINED) MESSAGE DURATION	160 / 240 / 320 / 480 (sec.)
DIGITAL SAMPLING RATE (kbps)	32 / 37 / 50 / 70
USE WITH MULTI - MESSAGE RECORDER ?	YES / NO

Dip settings should only be changed by a qualified service technician. Refer to the Internal Select Table on the CONNECTIONS DIAGRAM for switch settings options. There is also an internal tone control that should be re-adjusted for audio fidelity if the above settings are changed.

OVERVIEW

The DMR II is a solid-state monaural audio recording and playback device that operates much the same as a tape recorder. Because it is solid state there are no parts to wear out, ensuring year after year of trouble free service, with no loss in fidelity.

The DMR II is capable of recording and storing 2 separate audio tracks with a combined duration of up to 8 minutes total, depending on how a series of internal dip switches has been set. Though capable of storing 2 messages, only one can play back at a time.

Audio is loaded into the DMR II from an audio source with a line level or headphone output and is then converted into a digital format and stored on state-of-the-art DRAM memory chips. On playback audio is converted back into it's original (analog) form.

An internal memory backup battery maintains standby power to the memory, ensuring that messages are safe even after a long power failure. An automatic float-charging system is built-in to maintain the internal battery in peak condition.

The internal amplifier allows the DMR II to be played back directly into an external speaker with no need for additional equipment. A line level output is provided for applications where the audio will be played back through other equipment.

Playback is initiated using a number of different methods, whether from the front control panel or from a variety of external switches or triggering devices. The system can also play continuously using a simple start jumper connected across the rear switch contacts.

At Stop and Listen we have gone to great lengths to ensure that your new DMR II represents the ultimate in durability and ease of use. As you become more familiar with the DMR II you will find that the on-board recording features can add a whole new dimension to your application. You will soon be able to communicate much more effectively with your audience.

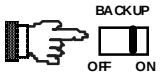
BEFORE YOU BEGIN:

Prior to connecting your Digital Message Recorder II (DMR II) we recommended that you read through these instructions from beginning to end to familiarize yourself with the installation and operation of the device. Remember to keep these instructions (along with the original shipping carton) in a safe place for future reference. Notify your shipping company or your dealer immediately if any shipping damage is evident. In the package you will find:

- the Digital Message Recorder II Unit
- Power Adapter - 12 volt DC, 1000 mA
- Audio Input Cord - 1/8” stereo mini plug to phono (RCA) plug
- Audio Patch Cord - phono (RCA) plug to phono (RCA) plug
- Auto-Repeat (looping) Jumper
- These instructions

SECTION 1: MAKING THE RIGHT CONNECTIONS

1.1 Plug the power adapter (supplied) into an unswitched 120 volt wall outlet and plug it into the power jack on rear of the DMR II. The LED indicator lights on the front panel will be illuminated indicating that there is power.

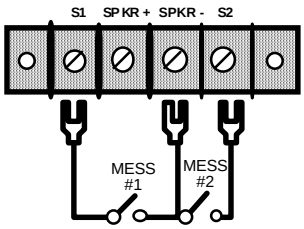


1.2 Make sure the battery BACKUP switch, located on the rear panel, is in the ON position. This will ensure that messages won't be accidentally erased, even during extended power disruptions (or as long as 20 days). Once power is re-established, the internal backup system will recharge automatically. If you plan to store the DMR II for longer periods, this switch should be turned OFF to preserve the internal battery. Remember to turn it back ON before putting the unit back into service.

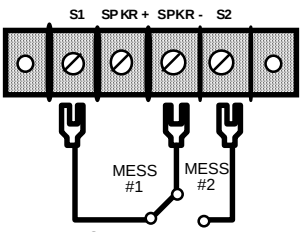
1.3 Leave the DMR II plugged in overnight with the BACKUP switch ON to ensure the backup system is fully charged. (The DMR II will act erratically if it has not been sufficiently charged.) It is advisable to allow the unit to charge in this manner after any extended period that the DMR II has not been plugged in.

1.4 Finish making the rest of the connections as illustrated in the CONNECTIONS DIAGRAM. If you are using optional equipment such as triggering devices, usage counters, Multi-Message Recorders, etc., refer to the literature supplied with that equipment for additional connection details.

START SWITCHES - connect one lead to the terminal marked S1 (for switch #1) or S2 (for switch #2). Connect the other lead(s) to the terminal marked SPKR (-).
A variety of switches can be used. Contact style should be normally open, momentary contact.

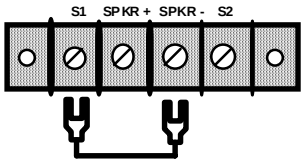


PUSHBUTTONS
NORMALLY OPEN
MOMENTARY SWITCHES

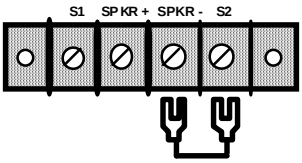


SPDT ALTERNATE
SWITCH (POS 1 SHOWN)
REPEATS EITHER #1 OR #2

REPEAT JUMPER - if continuos playback of one of the messages is desired, simply connect a jumper across the appropriate switch terminals for that message (e.g.. S1 and SPKR (-) for mess #1). Remember to temporarily disconnect the jumper(s) prior to recording.



REPEAT JUMPER
FOR MESS. #1



REPEAT JUMPER
FOR MESS. #2

SPEAKERS connect positive lead to the terminal marked SPKR (+), negative lead to terminal marked SPKR (-).

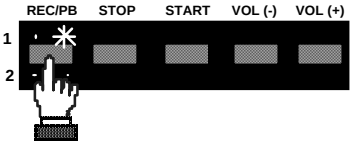
PORT A The Port A data connector is used to connect peripheral devices such as Multi - Message Recorders etc. This port is NOT an RS-232 data port

SECTION 2 - RECORDING MADE EASY

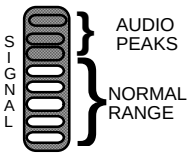
2.1 Ensure that the audio source is connected to the LINE IN jack of the DMR II as shown in the CONNECTIONS DIAGRAM and that any auto repeat jumpers (if used) have been temporarily disconnected or disabled.

TIP: If you are re-recording message #2 only and want to leave message #1 intact, you can skip forward to section 2.7.

2.2 Press the REC/PB (record/playback) button until the red (record) indicator light for message #1 turns on. The upper indicator lights are for message # 1 and the lower lights are for message # 2. (If the unit is configured for only one message the lower indicator lights will not turn on.)



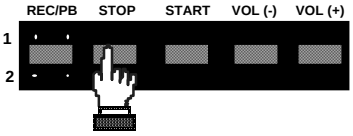
2.3 Set the output level of the Source (typically a cassette recorder is used). Only peak levels of audio should light up the top sectors of the SIGNAL indicator. Normally only the bottom 3-5 sectors will stay lit continuously. Note that the volume setting on the DMR II has no bearing on the incoming (source) level.



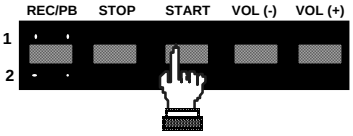
NOTE The DMR II has a monitor feature that allows you to hear what is being recorded through the external speaker. If distortion is apparent through the monitor feature, the input level is too high and should be reduced accordingly. (Otherwise extreme distortion may occur on playback due to "digital clipping").

TIP A good rule of thumb is to use as much input level as possible without going into clipping. It is not possible to damage the unit by overdriving the input.

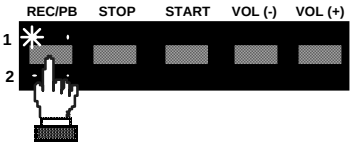
2.4 Press STOP - this erases any previously recorded message in position #1 and prepares the DMR II for recording. Cue the audio source to the point at which you wish the recording for message #1 to begin.



2.5 Press the START button to begin the recording process and start the audio source. When you have finished recording message #1 press the STOP button to end the recording process.



2.6 Message #1 is now stored in digital memory and will remain so until you wish to record something else. If you are not recording a second message, proceed to SECTION 3 - PLAYBACK. Otherwise, proceed with recording message #2 as outlined below.



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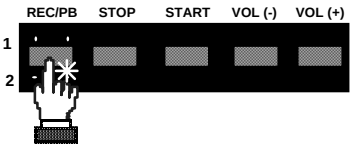
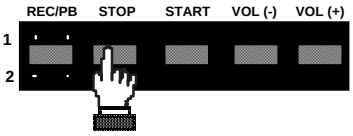
Section 2 - <u>Recording Made Easy</u> (cont'd)

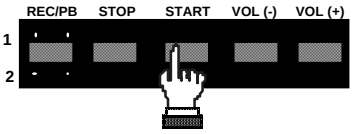


2.7 If you are recording a second message, press the REC/PB button twice until the RED record indicator light for message #2 (bottom right) is illuminated. (Do not cycle the REC/PB switch through message #1 until message #2 has been recorded or a memory overlap may occur. Do not play message #1 until message #2 has been recorded) Set the source recording level in the same manner as was done for message #1 above (sec 2.3).

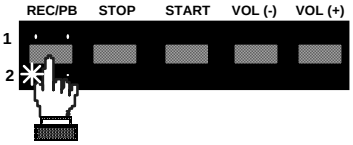
If the lower set of lights will not turn on, the DMR II has been configured for only one message via the internal dip switches.



2.8 Press STOP to clear the internal memory for message #2 (this has no effect on the message already stored in message #1).



2.9 Cue the source for message #2. Press START to begin the recording process and start the audio source. When you have finished recording message #2 press the STOP button to end the recording process.



2.10 Push the REC/PB button until the bottom green (playback) light turns on to put the DMR II back into the playback mode. Message #2 is now stored in digital memory and will remain so until you wish to record something else.

Notes -

- If you are re-recording message #1 you must also re-record message #2, otherwise a memory 'overlap' may occur. If this happens message #1 will overwrite part of message #2
- If you are re-recording message #2 only, there is no need to re-record message #1.
- When in doubt, re-record both messages anyway.

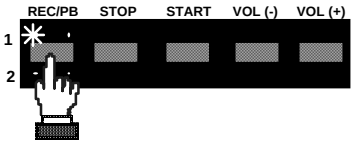
TIP If you anticipate that one message will be changed frequently we recommend that it be recorded as message #2 to avoid having to re-record message #1 every time.

Your recordings are now held in digital memory and will remain so until you wish to record something else. The DMR II will retain these messages in memory indefinitely unless the power to the unit is disconnected for a period of longer than 3 weeks (20 days).

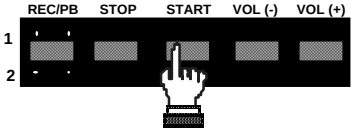
Should the DMR II be left unplugged for a long period it is recommended the unit be plugged in for a minimum of 24 hours prior to re-recording to ensure the internal backup system is adequately charged.

SECTION 3 - PLAYBACK !

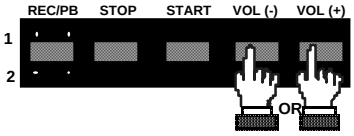
3.1 Press the REC/PB button until the green indicator light corresponding to the message you wish to play (#1 or #2) is selected.



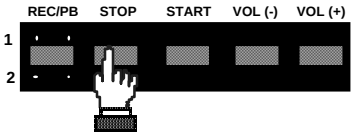
3.2 Press the START button to begin playback and set the VOLUME controls to the desired listening level. The external start switches can also be used to start playback at this point.



3.3 Press VOL(+) to increase the volume and VOL(-) to decrease the volume. Small increments in volume can be attained by using short taps on the buttons. The volume setting is displayed in the VOLUME indicator. (The DMR II will "remember" the volume setting you have selected on every subsequent playback, even if the DMR II remains unplugged over a period of time.)



3.4 The message can be stopped during playback by pressing STOP on the front panel of the DMR II (assuming that any auto repeat jumpers have been disconnected).



Note The DMR II has been designed so that message(s) can not be stopped or interrupted from any external start switches to avoid any interruptions during playback.

3.5 If continuous playback (looping) of message #1 is desired, connect the auto-repeat jumper between S1 and SPKR (-) on the back of the DMR II. If continuous playback (looping) of message #2 is desired, connect the auto-repeat jumper between S2 and SPKR (-). At the conclusion of the message the DMR II will restart at the beginning of that message with no gaps or delays. Remove the auto-repeat jumper to disable this feature. Continuous playback is useful for background audio, public announcements, etc.

TIP If a delay is desired before the audio track repeats itself, simply leave a bit of blank space at the beginning or end of the audio track (prior to pushing STOP) when making the recording.

DIFFICULTIES?? - CALL OUR TECHNICAL SUPPORT LINE

TOLL FREE

1-800-387-2365

CARE AND CLEANING

Your new Digital Message Recorder II has been designed and constructed for the utmost in quality and durability. Because of it's 100% solid-state design, the only thing you should ever have to do is dust it with a dry cloth. A cloth dampened with a mild soapy water solution can also be used. Do not immerse the unit in water.

If any of the cords become damaged or frayed they should be replaced immediately to avoid damage to the equipment or any peripheral devices. Contact your nearest dealer or Stop and Listen for replacements.

The DMR II should be plugged-in to the power source even when not in use to maintain the internal battery in peak condition. To protect the internal memory backup battery for long term storage, ensure that it has been sufficiently charged by leaving the unit plugged in with the (Memory) Backup switch turned ON for 48 hours, then turn the (Memory) Backup switch OFF and unplug the unit.

N.B. It is recommended that the 120 volt power outlet used for the equipment be uninterruptable (unswitched) to avoid damage to the equipment due to 'power spikes'.

SPECIAL NOTE: OUTDOOR APPLICATIONS

This equipment has been designed for ruggedness and is suitable for operation in almost any climate, from minus 30°F to plus 140°F. There are a few precautions ,however, which should be followed to prolong the service life of the units where they are exposed to environmental extremes:

Where the equipment may be subject to extreme humidity or free standing water the unit should be enclosed in a water tight and dust-proof enclosure. These can be found (typically stocked) at an electrical supply store or ordered through Stop and Listen. All connections to outside equipment should be through the bottom of the enclosure through a "gland nut" packing or equivalent water-tight connector.

Equipment can be special ordered with a protective (conformal) coating for situations where exposure to corrosive liquids or gasses is anticipated.

Where extreme cold temperatures are expected (colder than minus 30°F) the equipment enclosure should be suitably insulated. Where a battery is used in conjunction with the units, such as in winter solar applications, consideration should also be given to keeping the battery at suitable operating temperatures.

Where substantial vibration is anticipated the units should be shock-mounted using appropriate fasteners and all associated wiring and connections should be well secured.

SPECIFICATIONS

Digital Sampling Rate is internally selectable and effects Frequency Response and Max. Recording Time as outlined. Max. Recording Time is for messages 1 and 2 combined. Higher frequency responses are preferable for music.

Max. Recording Time (combined, min:sec)	2:40	4:00	5:20	8:00
Frequency Response (@-30dB input)	50-15KHz	50-12KHz	50-6.8KHz	50-4.5KHz

Message Capability	Either 1 or 2 messages, selectable, accessed 1 at a time
Audio Input	Line Level (200 mV p-p sensitivity), 10 K impedance
Audio Output - Line Level	200 mV p-p to 1V p-p adjustable, 10 K impedance
- Speaker Level	6 watts @ 4 ohms
Memory Type	80nS Fast Page Dynamic RAM
Digital Sampling Rate	70, 50, 37, 32 (Kbps, peak ADPCM)
Memory Backup	14 day capacity, 3.2A-hr storage cell, float charging
A/D Conversion	Adaptive Delta Pulse Code Modulation, Flash Approx.
Indicators (2)	VU (record/playback level), Volume Setting
Start Inputs - S1, S2	Momentary Contact Closure for Single Play, Sustained Contact Closure for Continuous Play
Expansion Capability	Expandable via DB25 connector, proprietary pinout, for use with peripheral equipment, Multi-Message Recorder, etc.
Power Consumption	360 mA @ 12 VDC (typical, average)
Power Supply	12 VDC output nominal @ 1000 mA, 120 VAC source
Approvals	CSA, UL, FCC CLASS A Tested and Approved
Construction Standard	Industrial/Commercial, carbon steel enclosure
Operating Temp	-20°F to +130°F (-30°C to +55°C)
Dimensions, Weight	6.5"w x10.0"d x1.5"h, 6.5 lbs (16.5w x 25.5d x 3.8h cm., 3 kg)

FCC, CSA NOTIFICATION

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with these instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference in which case the user will be required to correct the interference at his own expense. Equipment changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment does not exceed Class A limits for radio noise emissions as set out in Schedule V to VIII of the Radio Interference Regulations of Communications Canada.

WARRANTY

This Stop and Listen Inc. product is warranted against defects in workmanship and materials. If any failure resulting from a defect in either workmanship or material shall occur under normal use within **one year** from the original date of purchase, such failure shall be corrected free of charge to the original purchaser by repair or, at Stop and Listen Inc.'s sole option, replacement of the defective part or parts. No charge shall be made for labor or services performed during said one year period providing the product is delivered to an Authorized Service Center in the original shipping carton. This warranty does not cover equipment which has been tampered with in any way, or damage caused by accident, negligence, alteration, or misapplication. This product must be returned transportation prepaid, properly packed and insured. This warranty applies only to the original purchaser. NO OTHER WARRANTIES ARE EXPRESSED OR IMPLIED. STOP AND LISTEN INC. IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES.

TROUBLE SHOOTING GUIDE

Please take a few minutes to review the Operating Instructions and to check that all connections have been made in accordance with the CONNECTIONS DIAGRAM. The most common source of problems with electronic equipment is due to faults in the external wiring and connections. It is rare that the electronic component itself will develop a fault.

Following the instructions in a step-by-step manner helps pinpoint the source of any problems and helps to eliminate procedural problems. Once you are confident of the connections and have reviewed the instructions, the following guidelines may prove helpful. Effective trouble shooting is best done by using a process of elimination.

No Power, lights don't come on: make sure the unit has been plugged into a working power outlet (the outlet can be checked with a lamp). Check the internal fuse and replace with a 1 Amp, Type 3AG if required

Erratic Operation- reset the microprocessor by disconnecting the power and turning the BACKUP switch OFF for a minimum 10 seconds. Turn the BACKUP switch back on and plug the unit in, re-record the audio track. Ensure the unit has been adequately charged by leaving it plugged in overnight with the BACKUP switch turned ON.

Doesn't Record, monitor feature doesn't work- check all connections, ensure that the source output is OK. Try connecting the monitor speaker to a source that is known to be working.

Doesn't Record but monitor feature works - check with dealer to confirm that unit hasn't been configured for use with MMR or EMR

Can't Record Whole Message(s) - ensure the unit has been sufficiently charged with the BACKUP switch ON, check configuration on PP1 to ensure dip switches have been set correctly.

Audio Crackles or Breaks Up during high volume sections of audio track- review instructions under recording, reduce input signal level

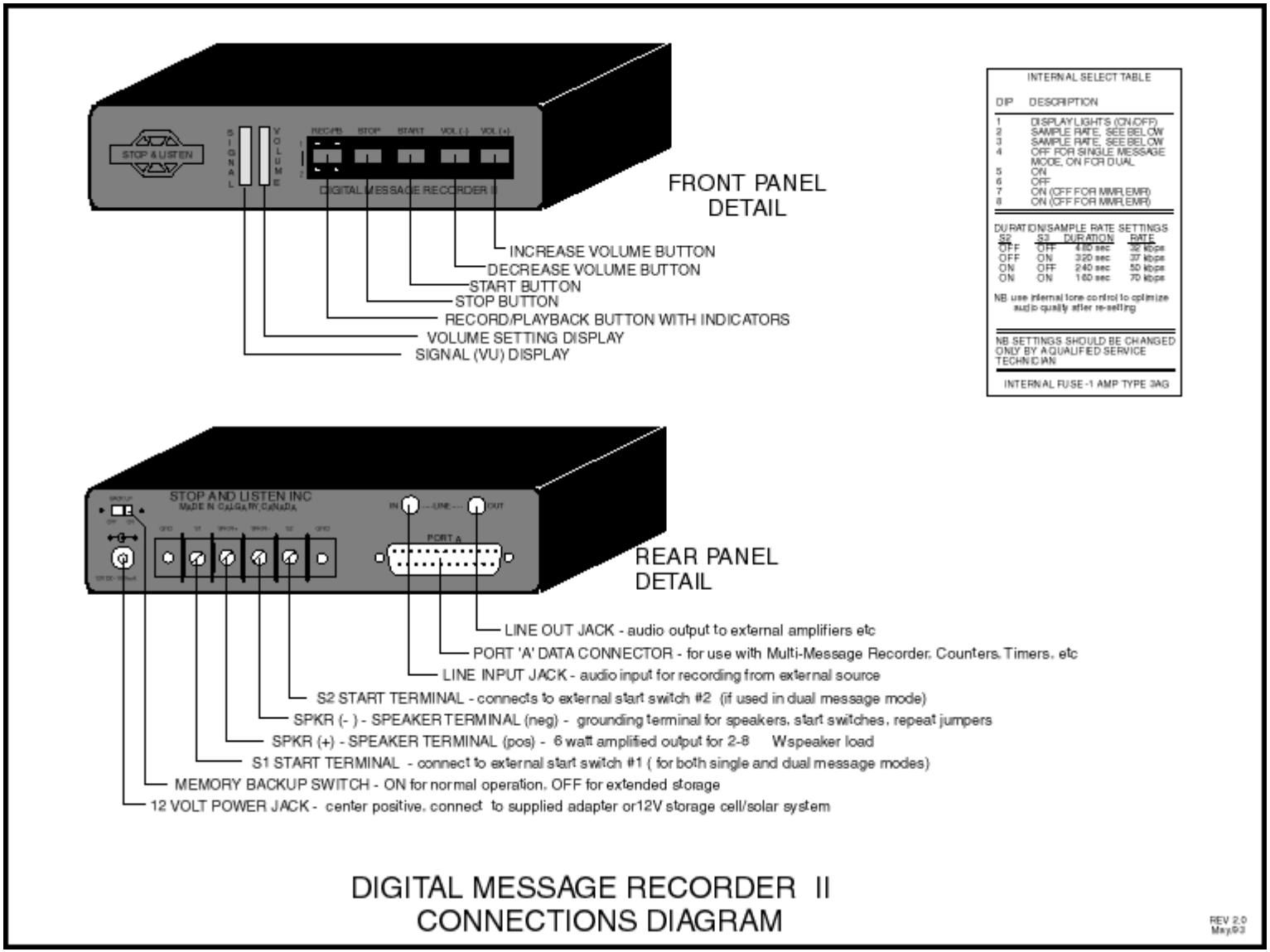
Severe Distortion on Playback- try recording with no input signal (Line In disconnected). This will quickly determine whether the problem is with the source material or with the equipment itself. If using a compact disc or DAT tape player there may be digital 'beating through the output that interferes with the DMR. Try using a conventional tape player.

Low Playback Volume - check to see that source has adequate drive for recording (see RECORDING section). Check to see that external speakers are connected in parallel, not series.

Message is Frequently Lost - check that the BACKUP switch is in the ON position. Check to ensure that the unit is plugged into continuous, unswitched power and has been plugged in long enough to recharge internal battery (24 hrs)

Messages (or parts of) get mixed up with each other - internal memory flags are being overwritten - Review the section on Recording in a step-by-step manner, don't review message #1 until message #2 has been recorded (dual message mode)

If you still experience difficulties after going through the steps outlined above, give our **Technical Support Hotline** a call TOLL FREE **1-800-387-2365**. Please have a complete description of the problem along with the model and serial numbers handy.


STOP & LISTEN
SIGNAL
VOLUME
REC/PB
STOP
START
VOL (-)
VOL (+)
DIGITAL MESSAGE RECORDER II
FRONT PANEL DETAIL
INCREASE VOLUME BUTTON
DECREASE VOLUME BUTTON
START BUTTON
STOP BUTTON
RECORD/PLAYBACK BUTTON WITH INDICATORS
VOLUME SETTING DISPLAY
SIGNAL (VU) DISPLAY
INTERNAL SELECT TABLE
DIP DESCRIPTION
1 DISPLAY LIGHTS (ON/OFF)
2 SAMPLE RATE, SEE BELOW
3 SAMPLE RATE, SEE BELOW
4 OFF FOR SINGLE MESSAGE MODE, ON FOR DUAL
5 ON
6 OFF
7 ON (OFF FOR MMR/EMR)
8 ON (OFF FOR MMR/EMR)
DURATION/SAMPLE RATE SETTINGS
S2 S3 DURATION RATE
OFF OFF 480 sec 32 kbps
OFF ON 320 sec 37 kbps
ON OFF 240 sec 50 kbps
ON ON 160 sec 70 kbps
NB use internal tone control to optimize audio quality after re-setting
NB SETTINGS SHOULD BE CHANGED ONLY BY A QUALIFIED SERVICE TECHNICIAN
INTERNAL FUSE -1 AMP TYPE 3AG
STOP AND LISTEN INC
MADE IN CALGARY, CANADA
IN
LINE
OUT
PORT A
REAR PANEL DETAIL
LINE OUT JACK - audio output to external amplifiers etc
PORT 'A' DATA CONNECTOR - for use with Multi-Message Recorder, Counters, Timers, etc
LINE INPUT JACK - audio input for recording from external source
S2 START TERMINAL - connects to external start switch #2 (if used in dual message mode)
SPKR (-) - SPEAKER TERMINAL (neg) - grounding terminal for speakers, start switches, repeat jumpers
SPKR (+) - SPEAKER TERMINAL (pos) - 6 watt amplified output for 2-8 Wspeaker load
S1 START TERMINAL - connect to external start switch #1 (for both single and dual message modes)
MEMORY BACKUP SWITCH - ON for normal operation, OFF for extended storage
12 VOLT POWER JACK - center positive, connect to supplied adapter or12V storage cell/solar system
DIGITAL MESSAGE RECORDER II
CONNECTIONS DIAGRAM
REV 2.0
May/93